

PATENT ABSTRACTS OF JAPAN

(11)Publication number : 06-284309

(43)Date of publication of application : 07.10.1994

(51)Int.Cl.

H04N 3/32

H04N 3/16

(21)Application number : 05-095396

(71)Applicant : SONY CORP

(22)Date of filing : 29.03.1993

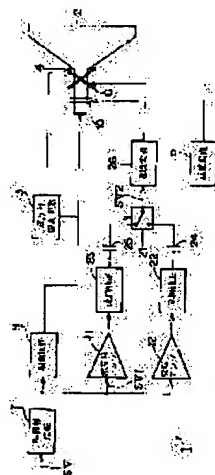
(72)Inventor : WATABE JUNZO
KAMIYAMA AKIHIRO
KAWAMURA YOROZU
MAEKAWA OSAMU

(54) MONITOR DEVICE

(57)Abstract:

PURPOSE: To obtain a monitor device having simple constitution in which picture quality can be improved by switching the polarity of a modulation magnetic field according to a back-and-forth path to modulate a speed according to bidirectional deflection.

CONSTITUTION: This device is equipped with a modulating coil 10 which forms the modulation magnetic field for accelerating and decelerating the scanning speed of the beam of a cathode ray tube 2, and speed modulating means 11, 12, and 21-26 which obtain a differentiated signal S1 by differentiating a video signal SV1, generate a driving signal by using the differentiated signal S1 as a reference, and drive the modulating coil 10 by impressing the driving signal to the modulating coil 10. Then, the polarity of the driving signal to be impressed to the modulating coil 10 is switched by the speed modulating means 11, 12, and 21-26 according to the scanning of the back-and-forth path. Thus, the polarity of the driving signal to be impressed to the modulating coil 10 is switched according to the scanning of the back-and-forth path, so that even when the scanning direction is switched on the back-and-forth path, the scanning speed of the beam of the cathode ray tube 2 can be accelerated and decelerated corresponding to the switching of the scanning direction.



LEGAL STATUS

[Date of request for examination]

[Date of sending the examiner's decision of rejection]

[Kind of final disposal of application other than the examiner's decision of rejection or application converted registration]

[Date of final disposal for application]

[Patent number]

[Date of registration]

[Number of appeal against examiner's decision of rejection]

[Date of requesting appeal against examiner's decision of rejection]

[Date of extinction of right]

* NOTICES *

Japan Patent Office is not responsible for any damages caused by the use of this translation.

1. This document has been translated by computer. So the translation may not reflect the original precisely.
2. **** shows the word which can not be translated.
3. In the drawings, any words are not translated.

CLAIMS

[Claim(s)]

[Claim 1] In the monitoring device which repeats the scan of an outward trip and a return trip on the basis of a predetermined video signal, and forms the display screen of the above-mentioned video signal in a cathode-ray tube The modulation coil which forms the modulation magnetic field which accelerates and decelerates the scan speed of the beam of the above-mentioned cathode-ray tube, Differentiate the above-mentioned video signal, acquire a differential signal, and a driving signal is generated on the basis of the above-mentioned differential signal. It is the monitoring device which is equipped with a velocity modulation means to impress the above-mentioned driving signal to the above-mentioned modulation coil, and to drive the above-mentioned modulation coil, and is characterized by the above-mentioned velocity modulation means switching the polarity of the above-mentioned driving signal which is the scan of the above-mentioned outward trip and a return trip, and is impressed to the above-mentioned modulation coil.

[Claim 2] The above-mentioned velocity modulation means is a monitoring device according to claim 1 characterized by switching the polarity of the above-mentioned driving signal which is the scan of the above-mentioned outward trip and a return trip, and is impressed to the above-mentioned modulation coil by receiving the above-mentioned video signal in a reversal amplifying circuit and a noninverting amplifying circuit, differentiating alternatively the output signal of the above-mentioned reversal amplifying circuit and a noninverting amplifying circuit, and generating the above-mentioned differential signal.

[Claim 3] The above-mentioned video signal is a monitoring device according to claim 1 or 2 characterized by the bird clapper with the video signal which the time-axis reversed by the scan of the above-mentioned outward trip and a return trip.

[Translation done.]

* NOTICES *

Japan Patent Office is not responsible for any damages caused by the use of this translation.

- 1.This document has been translated by computer. So the translation may not reflect the original precisely.
- 2.**** shows the word which can not be translated.
- 3.In the drawings, any words are not translated.

DETAILED DESCRIPTION

[Detailed Description of the Invention]

[0001]

[Table of Contents] this invention is explained in order of the following.

Technology of the Field of the Invention former (drawing 6 and drawing 7)

Object of the Invention (drawing 8 - drawing 10)

The means for solving a technical problem (drawing 1 and drawing 2)

Operation (drawing 1 and drawing 2)

Composition of an example (1) example (drawing 1 - drawing 5)

(2) Example effect-of-the-invention [0002] besides the effect (3) of an example

[Industrial Application] Especially this invention is applied to the monitoring device which applied the horizontal deflection circuit of a bidirectional deviation about a monitoring device, and is suitable.

[0003]

[Description of the Prior Art] Conventionally, there are some which were made in the monitoring device as [improve / the focal property of a cathode-ray tube / with the application of the technique of velocity modulation]. That is, if change of this intensity level is followed and the intensity level of the display screen changes rapidly when the intensity level of a video signal simian virus changes rapidly between 1 horizontal-scanning periods as shown in drawing 6 for example, a sharp display image can be obtained (drawing 6 (A)). If the video signal of this 1 horizontal-scanning period incidentally continues in a horizontal scanning period, a display image as shown in drawing 6 (B) will be formed.

[0004] However, a cathode-ray tube has the feature from which making a beam diameter small below at a predetermined value follows also for being difficult and changing cathode voltage rapidly further, and the beam current does not change rapidly. For this reason, only by carrying out the raster scan of the beam, even if the signal level of a video signal simian virus changes rapidly, the display screen of a cathode-ray tube has the feature from which a luminosity changes only to ****, so that the portion from which the signal level of this video signal simian virus changes to drawing 7 rapidly may be expanded and shown (drawing 7 (A)) (drawing 7 (B)).

[0005] For this reason, by differentiating a video signal simian virus, the monitoring device which applied the technique of velocity modulation acquires the differential signal S1 with which signal level changes in the standup and falling of signal level of a video signal simian virus (drawing 7 (C)), and carries out adjustable [of the scan speed of the beam which carries out a raster scan on the basis of this differential signal S1] (drawing 7 (D)). That is, this kind of monitoring device makes a scan speed quick just before this standup, when the signal level of a video signal simian virus starts rapidly, the part signal level stands, and a top makes an immediately after [****] scan speed late.

[0006] When the signal level of a video signal simian virus falls rapidly contrary to this, a scan speed is made late just before this falling, the part signal level stands and the bottom makes an immediately after [****] scan speed quick. thus, the same state as the case where the beam current changes rapidly before and behind the standup of this signal level, and falling when carrying out -- forming -- obtaining -- thereby -- the luminosity of the display screen -- rapid -- starting -- and it can bring down and the focal property of the display screen can be improved seemingly

[0007] For this reason, this kind of monitoring device forms a predetermined driving signal on the basis of the differential signal generated from the video signal, and drives the coil for velocity modulation by this driving signal. This coil for velocity modulation is arranged at the portion of the neck of a cathode-ray tube, for example, it forms a modulation magnetic field in red and the position which each blue and green beam once crosses and is injected towards a tubular surface so that it may pierce through a neck up and down.

[0008] It is made as [bring / the luminosity of the display screen is started rapidly and / as it is made as / drive / a modulation coil / on the basis of a differential signal / so that the acceleration and deceleration of this scan speed may be carried out according to change of the signal level of a video signal a center / the scan speed V1 to which a beam carries out the raster scan of the monitoring device by this] / and a dashed line shows drawing 7 (E) by this / it].

[0009]

[Problem(s) to be Solved by the Invention] By the way, in this kind of monitoring device, as shown in drawing 8 and drawing 9 as contrasted with the deviation method by the raster scan, the deflection circuit (it is called the deflection circuit of a bidirectional deviation below) which drives a horizontal deflection coil using the driving signal from which signal level changes symmetrically in the order at this time on the basis of a predetermined time like a sinusoidal signal is proposed (U.S.

***** 4,672,449 No.).

[0010] Both display images can be formed by the scan (it is called the scan of an outward trip below) which goes to the right from the left of a screen according to this deflection circuit, and its scan (it is called the scan of a return trip below) which goes to the left from the right of a screen conversely, and it is deviation frequency. It can decrease to one half. Moreover, since the abrupt change of the deflecting current like a saw-tooth wave signal can be prevented, spurious radiation etc. can be reduced and the burden of a deflection-circuit element can also be mitigated.

[0011] However, there is a problem which cannot apply the technique of the velocity modulation applied to the conventional raster scan as it is in the monitoring device which applied the bidirectional deviation. That is, as shown in drawing 10 by carrying out a time-axis and a scanning direction at a retrose, in a bidirectional deviation, the scan of a return trip becomes the case where the magnetic field formation direction of a horizontal deflection coil is an outward trip, and a retrose, by making the case of the conventional raster scan, and a retrose reverse the time-axis of a video signal, and making them scan.

[0012] If this applies the technique of velocity modulation to a bidirectional deflection circuit, the modulation magnetic field formed so that a scan speed may be accelerated on an outward trip will work in a return trip in the direction which decelerates a scan speed contrary to this. Therefore, with the application of the technique of the velocity modulation a RASURA scan as it is, the differential signal S1 (drawing 10 (C)) is generated from a video signal simian virus (drawing 10 (A) and (B)). When a modulation magnetic field is formed on the basis of this differential signal S1, the scan speed of a beam just before signal level starts, it becomes late, signal level stands, a top becomes quick just behind **** (drawing 10 (D)), and brightness change of the display screen which should be emphasized as a dashed line shows after all is oppressed conversely, and comes (drawing 10 (E)) to be displayed.

[0013] Change of the luminosity of the display screen comes to be emphasized and displayed by following change of the signal level of a video signal like the case of a raster scan, and incidentally, being able to carry out the acceleration and deceleration of the scan speed in an outward trip. Now, quality of image comes to differ greatly in an outward trip and a return trip, and the quality of image of the display screen deteriorates on the contrary as a whole.

[0014] this invention was made in consideration of the above point, and tends to propose the monitoring device of simple composition of that it can apply in a bidirectional deviation, velocity modulation can be carried out, and quality of image can be improved.

[0015]

[Means for Solving the Problem] In order to solve this technical problem, it sets to the 1st invention. In the monitoring device 1 which repeats the scan of an outward trip and a return trip on the basis of the predetermined video signal simian virus 1, and forms the display screen of a video signal simian virus 1 in a cathode-ray tube 2 The modulation coil 10 which forms the modulation magnetic field which accelerates and decelerates the scan speed of the beam of a cathode-ray tube 2, Differentiate a video signal simian virus 1, acquire the differential signal S1, and a driving signal is generated on the basis of the differential signal S1. It has velocity modulation meanses 11, 12, 21, 22, 23, 24, 25, and 26 to impress a driving signal to the modulation coil 10, and to drive the modulation coil 10. The velocity modulation meanses 11, 12, 21, 22, 23, 24, 25, and 26 are the scans of an outward trip and a return trip, and switch the polarity of the driving signal impressed to the modulation coil 10.

[0016] Furthermore, in the 2nd invention, by receiving a video signal simian virus 1 in the reversal amplifying circuit 12 and the noninverting amplifying circuit 11, differentiating alternatively the output signal of the reversal amplifying circuit 12 and the noninverting amplifying circuit 12, and generating the differential signal S1, the velocity modulation meanses 11, 12, 21, 22, 23, 24, 25, and 26 are the scans of an outward trip and a return trip, and switch the polarity of the driving signal impressed to the modulation coil 10.

[0017] Furthermore in the 3rd invention, a video signal simian virus 1 becomes with the video signal which the time-axis reversed by the scan of an outward trip and a return trip.

[0018]

[Function] By the scan of an outward trip and a return trip, if the polarity of the driving signal impressed to the modulation coil 10 is switched, even when a scanning direction will switch in an outward trip and a return trip, corresponding to a switch of a scanning direction, the acceleration and deceleration of the scan speed of the beam of a cathode-ray tube 2 can be carried out.

[0019]

[Example] About a drawing, one example of this invention is explained in full detail below.

[0020] (1) In the block diagram 1 of an example, 1 shows a monitoring device as a whole, drives a cathode-ray tube 2 with the application of the technique of a bidirectional deviation, and, thereby, forms a desired display image. That is, a monitoring device 1 drives the vertical deflection coil 6 by the vertical deflection circuit 5, and, thereby, forms the display screen with the application of the technique of a bidirectional deviation while it drives the horizontal deflection coil 4 by the bidirectional deflection circuit 3.

[0021] Since a monitoring device 1 corresponds to this bidirectional deviation as furthermore shown in drawing 2, to separating a horizontal synchronizing signal and a vertical synchronizing signal from the video signal simian virus inputted one by one, and outputting to the bidirectional deflection circuit 3 and a vertical deflection circuit 5 (drawing 2 (A)), this video signal simian virus is further inputted into the time-axis inverter circuit 7, and the time-axis of this video signal simian virus is reversed for every 1 horizontal scanning period (drawing 2 (B)). Thereby, a monitoring device 1 changes the time-axis of a video signal, generates a video signal simian virus 1 so that it may correspond to the scan of an outward trip and

a return trip by the time-axis inverter circuit 7, and it drives a cathode-ray tube 2 in the drive circuit 8 based on this video signal simian virus 1.

[0022] Furthermore, in the case of this example, a monitoring device 1 arranges the modulation coil 10 formed in the field (that is, it becomes on G4 electrode) which the neck of a cathode-ray tube 2 and three beams cross, and is injected by the tubular surface with the coil of a vertical couple, and is made as [carry out / velocity modulation / a modulation magnetic field is formed and / with this modulation coil 10,]. For this reason, a monitoring device 1 gives the video signal simian virus 1 outputted from the time-axis inverter circuit 7 to the reversal amplifier 11 and the noninverting amplifier 12, and amplifies and outputs a video signal simian virus 1 by gain 1 and -1 here, respectively.

[0023] That is, it is made as [output / the video signal which the reversal amplifier 11 became by the emitter-grounded type amplifying circuit formed with resistance 13-15 and the transistor 16, and amplified the video signal on gain 1 as shown in drawing 3 , and polarity reversed / from the collector of this transistor 16]. On the other hand, it is made as [output / the video signal which amplified on gain 1 by the noninverting amplifier's 12 becoming by the emitter-grounded type amplifying circuit formed with resistance 17-19 and the transistor 20, and outputting the emitter output of this transistor 16 as shown in drawing 4 , and corresponded].

[0024] After phase compensators 22 and 23 receive the output signal of the ***** reversal amplifier 11 and the noninverting amplifier 12 and it carries out phase correction here, they cut and output the dc component of a video signal through capacitors 24 and 25. A selection circuitry 21 carries out the selection output of the output signal of the reversal amplifier 11 and the noninverting amplifier 12 by turns by inputting capacitors 24 and 25 and switching a contact synchronizing with the scan of an outward trip and a return trip.

[0025] Thereby, in the scan of an outward trip, a monitoring device 1 generates the video signal simian virus inputted into this monitoring device 1, and the video signal simian virus 2 which corresponded, and outputs it to the velocity modulation circuit 26 (drawing 2 (C)). On the other hand, during the period T1 which forms the effective display screen among the scanning intervals of a return trip, a selection circuitry 21 carries out the selection output of the output signal of the reversal amplifier 12, and thereby, during this period T1, a monitoring device 1 generates the video signal simian virus 2 which polarity reversed to the video signal simian virus, and it outputs it to the velocity modulation circuit 26.

[0026] The velocity modulation circuit 26 generates a differential signal from the video signal simian virus 2 inputted one by one like the case of the velocity modulation of the usual raster scan, makes this differential signal criteria, and drives the modulation coil 10. About the scan of an outward trip, when a scan speed can be accelerated slowed down before and after the standup when the signal level of a video signal simian virus starts rapidly, and signal level falls a video signal simian virus rapidly contrary to this, a monitoring device 1 can slow down and accelerate a scan speed before and behind the falling, and, thereby, can emphasize the light and darkness of the display screen.

[0027] In the scan of a return trip, as shown in drawing 5 , on the other hand, by differentiating the video signal simian virus 2 (drawing 5 (B)) which polarity reversed to the video signal simian virus (drawing 5 (A)), and forming the differential signal S1 As for the velocity modulation circuit 26, contrary to the case of an outward trip, rapidly, the intensity level of the display screen can acquire the differential signal S1 (drawing 5 (D)) which signal level falls and starts, a standup and when falling (drawing 5 (C)). In addition, in drawing 5 , a scanning direction and a time-axis are reversed and expressed corresponding to drawing 11.

[0028] When a monitoring device 1 can form the modulation magnetic field of an outward trip and reversed polarity in the scan of a return trip and the intensity level of the display screen starts rapidly like the case of an outward trip by this, When a scan speed can be accelerated slowed down before and after the standup, and an intensity level stands rapidly and goes down contrary to this, a scan speed can be slowed down and accelerated before and behind the falling, and, thereby, the light and darkness of the display screen can be emphasized (drawing 5 (E) and (F)). Thereby, with the simple composition which adds the reversal amplifier 12 and a selection circuitry 21, a monitoring device 1 diverts the velocity modulation circuit of a raster scan, it can carry out velocity modulation, it can be applied to a bidirectional modulation by this, and can improve the focal property of the display screen with simple composition.

[0029] (2) according to the composition beyond the effect of an example, when polarity is switched in an outward trip and a return trip and a video signal supplies a velocity modulation circuit, with the simple composition which only adds a selection circuitry and reversal amplifier, in a bidirectional deviation, it can apply, velocity modulation can be carried out, and quality of image can be improved

[0030] (3) Although the case where the modulation magnetic field impressed to a modulation coil in other examples, in addition above-mentioned examples using reversal amplifier and noninverting amplifier by switching the polarity of a video signal in an outward trip and a return trip beforehand was switched in an outward trip and a return trip was described this invention may switch the modulation magnetic field which switches the polarity of for example, not only this but a differential signal, and is impressed to a modulation coil in an outward trip and a return trip, switches the polarity of the driving signal further impressed to a direct modulation coil, and you may make it switch the polarity of a modulation magnetic field in an outward trip and a return trip.

[0031]

[Effect of the Invention] According to this invention, the monitoring device of simple composition of that it can apply in a bidirectional deviation, velocity modulation can be carried out, and quality of image can be improved can be obtained as mentioned above by switching the polarity of a modulation magnetic field in an outward trip and a return trip.

[Translation done.]

Drawing selection ▼

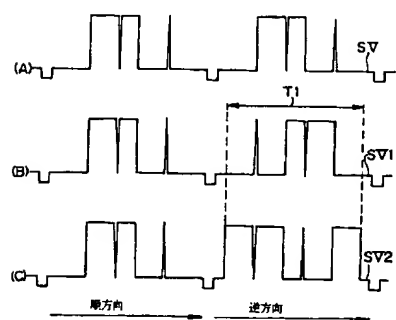
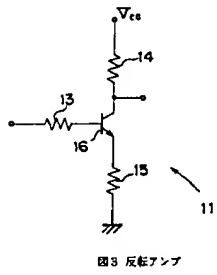


図2 映像信号の処理

[Translation done.]

Drawing selection ▼



[Translation done.]

Drawing selection ▼

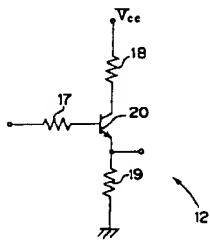
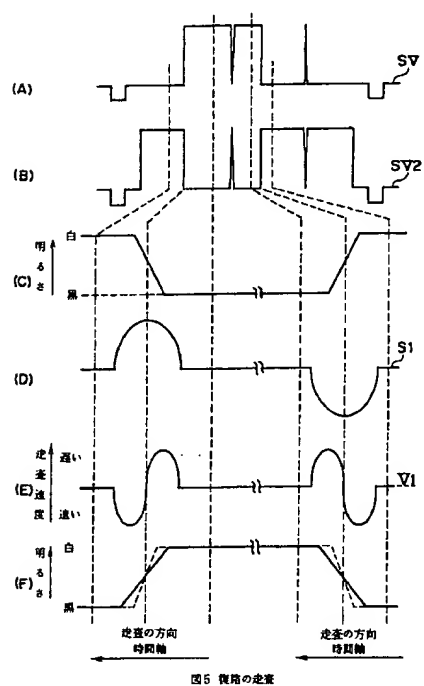


図4 共通エミッタアンプ

[Translation done.]

Drawing selection

drawing 5



[Translation done.]

Drawing selection ▼

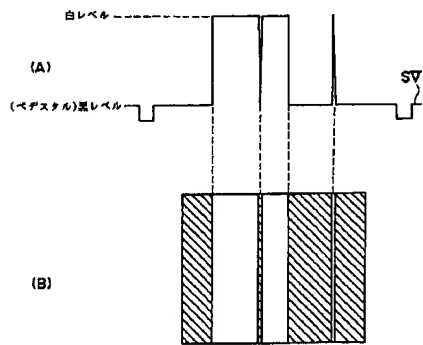


図6 映像信号

[Translation done.]

Drawing selection ▼

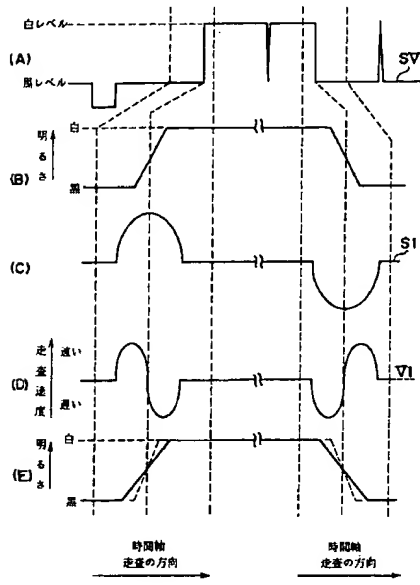


図7 ラスタ走査の速度制御

[Translation done.]

Drawing selection ▼

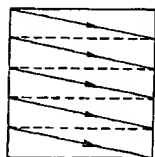


図8 ラスタ化室の偏向

[Translation done.]

Drawing selection ▼

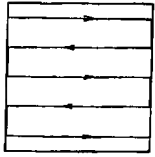


図9 双方向偏向

[Translation done.]

Drawing selection drawing 10

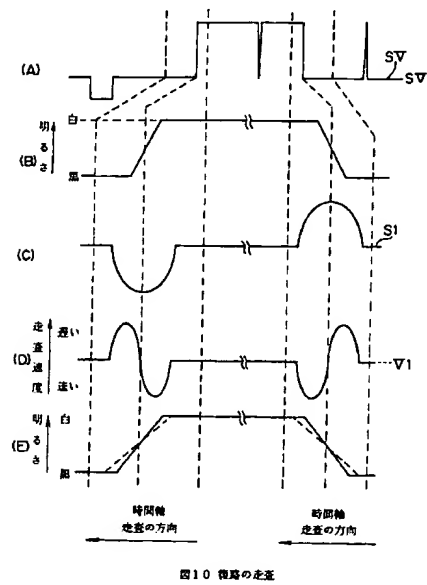


図10 回路の波形

[Translation done.]